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10/025,156	12/18/2001	David E. Fredericksen	13477	5773

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ILLINOIS TOOL WORKS

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EXAMINER

PARKER, FREDERICK JOHN

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 03/13/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/025,156

Applicant(s)

Examiner

Group Art Unit

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE — 3 — MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

☒ Responsive to communication(s) filed on 2/10/03

☒ This action is **FINAL**.

- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-21 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-21 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_ ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other \_\_\_\_\_

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***Response to Amendment***

***Claim Rejections - 35 USC § 112***

1. The amendments in response to the 35 USC 112/ first and second paragraph rejections of the Previous Office Action are acknowledged and appreciated, and the Examiner withdraws the rejections.

***Claim Rejections - 35 USC § 102***

2. The amendments in response to the 35 USC 102 rejections of the Previous Office Action are acknowledged, and the Examiner withdraws the previous 103 rejections. The new rejections below are necessitated by amendment.

***Claim Rejections - 35 USC § 103***

3. The amendments in response to the 35 USC 103 rejections of the Previous Office Action are acknowledged, and the Examiner withdraws the rejections. The new rejections below are necessitated by amendment.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-11,14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leach US 5338578 in view of Smith US 5344672.

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Leach teaches powder coating plastic resin substrates comprising steps of: washing/ cleaning substrates followed by drying to remove wash water (per claims 2-4) and heating the cleaned article to a temperature to cause degassing at a temperature of at least the melting point of the powder to be applied; powder coating "by any conventional powder coating technique" whereas the powder melts and flows at the surface; and then further heating at elevated temperatures above the powder cure temperature to initiate cross-linking and curing. See column 4, 61 to col. 5, 45. It is inherent that the final, cured powder coated product remain undistorted or melted to maintain its viability as a coated product, which is clearly the case in Leach, such that the temperatures cited must be less than the melting point of the plastic substrate. Since the coating methods include fluidized bed or spraying, it is apparent electrostatics are not essential, and there would have been no necessity for grounding the plastic substrates per claims 14 and 17. Plastic substrates are taught to be particularly useful for compression molded parts, but is explicitly recognized to be useful for "other compression and **injection molding** plastics of both thermosetting and thermoplastic type with and without fiber reinforcement" (col. 2, 38-42, emphasis added). Column 4, 64-col. 5, 8 teaches to heat the washed part for a time and temperature to achieve a partial

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degassing prior to application of the powder coat which melts and flows in contact with the preheated substrate. "Substantially completely degassing the (preheated) article" to be powder coated is not taught.

Smith teaches a similar method of coating plastic articles without limitation (encompassing injection molded plastic parts) which is preheated at a temperature to degas the substrate prior to applying a coating powder per column 4, 30-44. Preheating at a temperature to degass the substrate and to allow the subsequently applied powder to melt and flow on the substrate is taught, the degassing step being essential to avoid deleterious popping of the applied coating due to trapped/ absorbed water or other volatiles during powder curing. Thus, it would have been obvious to one of ordinary skill to have preheated the substrate of Leach at a sufficient time and temperature to "drive out" water and other volatiles as taught by Smith to provide smooth, plastic-coated plastic substrates in which the coating is free of popping defects. The Examiner also points out Applicants admit in [0030] of their specification that "It will be recognized by those skilled in the art that the first drying step is used to reduce the amount of, if not eliminate the "trapped" moisture in the article" to prevent bubble formation from trapped water/ volatiles, thereby further supporting the obviousness of such a step.

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As to claim 5, cooling of the cured coated article and plural coatings are not taught. However, cooling of the article would have been an obvious necessity within the purview of one of ordinary skill in the art in order to give the final article utility, since clearly a heated coated article in an oven has no utility. The conclusion of obviousness may be based upon "common knowledge" and "common sense" of the person of ordinary skill, *In re Bozek* 163 USPQ 545.

Regarding claims 6-11 and 18-19, Leach does not explicitly teach the detailed steps of claim 6 for a second coating. However, Leach does disclose on column 6, 13+ that optionally an additional resin coating may be applied, without further limitation. These are applied by the multi-step coating process discussed above, e.g preheating, coating application, and heating to cure/ cross-link the coating. Thus, since the coated substrate is still a plastic substrate, it is the Examiner's position that one of ordinary skill would have recognized the utility of applying a second coating onto the coated substrate using coating steps similar to the first coating in order to achieve the recognized benefits of high gloss finish and a surface free of defects due to trapped gasses.

Regarding claims 15-16, Leach teaches to use carboxylic acid group-containing polyester coating powders (col.3, 50-55) which is synonymous with Applicants' "carboxyl polyester". Leach also teaches on the bottom of

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column 6 that curing times and temperatures vary depending on the powder coating composition, e.g. at least 250 F, preferably 250-375F; further, preheating is carried out at 150-300 F (col. 4, bottom). These ranges overlap or are close to those of claims 15-16. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made if the overlapping portion of the ranges disclosed by the reference were selected because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Wortheim* 191 USPQ 90. Differences such as a curing temperature of "about 400 F" are obvious variations which reflect either differences in coating material, substrate size, etc or the fact that time/temperature are related cause-effective variables such that equivalent results can be obtained by simply increasing times at lower temperatures, or vice-versa. Thus such variations do not patentably distinguish over the prior art because they are variations within the purview of one of ordinary skill. It would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of Leach in view of Smith and to modify times, temperatures, and other conventional variables to achieve a desired end coating because such variations would have been within the purview of one of ordinary skill.

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Regarding article claims 20-21, since it has been established above the substrates include injection molded plastics, and the obviousness of preheating to drive out volatiles/ water in such a substrate prior to powder coating to allow formation of a uniform cured coating free of "popping" defects, it is apparent that the products of the combination of references and claims 20-21 would be essentially the same.

6. Claim 12-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Leach in view of Smith and further in view of Anderson et al US 5516551.

Leach and Smith are cited for the same reasons discussed above, which are incorporated herein. Application of the powder by electrostatic spraying is not cited.

Anderson et al teaches a similar method of powder coating reinforced plastic substrates with similar coating powders in which the substrate is preheated, resin powder is applied to a preheated substrate below the powder cure temperature, and then heating the powder coated substrate at or above the curing temperature for a time sufficient to substantially cure the powder (col. 4, 63-col. 5, 15. It is also explicitly noted that temperatures used must not degrade, deform, or damage the articles. Powder is applied "in any conventional manner such as by spraying and preferably by electrostatically



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applying the powder coating". Since Leach in view of Smith applies the powder by conventional electrostatic and non-electrostatic methods, and Anderson et al teaches the equivalence of applying such powders to similar substrates by electrostatic or non-electrostatic powder coating, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of Leach in view of Smith by using electrostatic powder coating means as taught by Anderson because such means are demonstrated to be equivalent for applying such powders to the plastic substrates.

#### RESPONSE TO REMARKS

The Examiner has fully considered Applicants remarks and amended claims; the new rejections above are necessitated by the amendments. The Examiner has pointed out in the rejections that Leach teaches injection molded plastics, and utilizes Smith as a secondary reference to show the obviousness of preheating to "substantially completely" degass a plastic article to be powder coated. The Examiner has therefore addressed many of Applicants remarks related to the amended claims in the above rejections. Additional comments are made below.

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Regarding the argument on the top of page 9 that the Leach coating layer is only a precursor to additional coatings, the Applicants claims not only do not exclude additional layers but [0012] and [0024] of the specification also teach applying additional powder coating layers.

Regarding the argument in the third full paragraph of page 9 that the substrate articles are formed from thermoplastic materials, the Examiner points out that (1) such materials are not claimed in 1 and 18 and therefore argument is not commensurate with scope of claims, and (2) neither Leach (col. 2, 38-42) nor Smith (col. 4, 30-33) precludes such plastic substrate articles.

In view of the above rejections and comments, claims 1-21 are finally rejected.

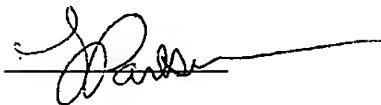
7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

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action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred J. Parker whose telephone number is (703) 308-3474.



Fred J. Parker

**FRED J. PARKER  
PRIMARY EXAMINER**

March 6, 2003

fr10-025186